

PETROLEUM DEVELOPMENT CORP Weld County CO

Well Name: **Gaddis 36J-3034 /Codell Sidetrack**

Surface Location: Gaddis Pad Sec.36-T4N-R68W

North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

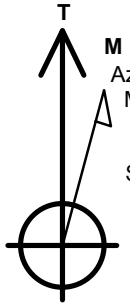
Ground Elevation: 5058.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1344049.97	3151709.26	40.276540	-104.956270	

Ensign Rig #119 - RKB - 16' WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
SHL 310'FNL, 1240'FWL	1.0	0.0	0.0	Point
BHL 36J-3034 500'FSL, 1323'FWL	7239.0	-4488.2	78.1	Point
BHL 36J-3034 (CODELL SIDETRACK) 500'FSL & 1158'FWL	7273.4	-4488.2	-56.0	Point



Azimuths to True North
Magnetic North: 8.64°

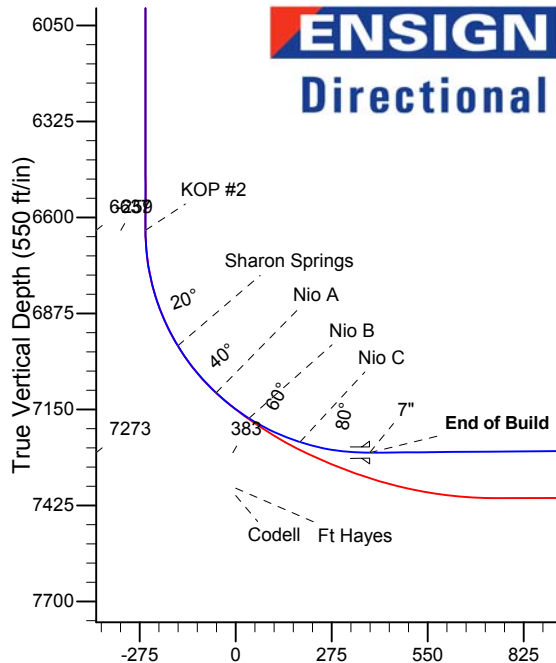
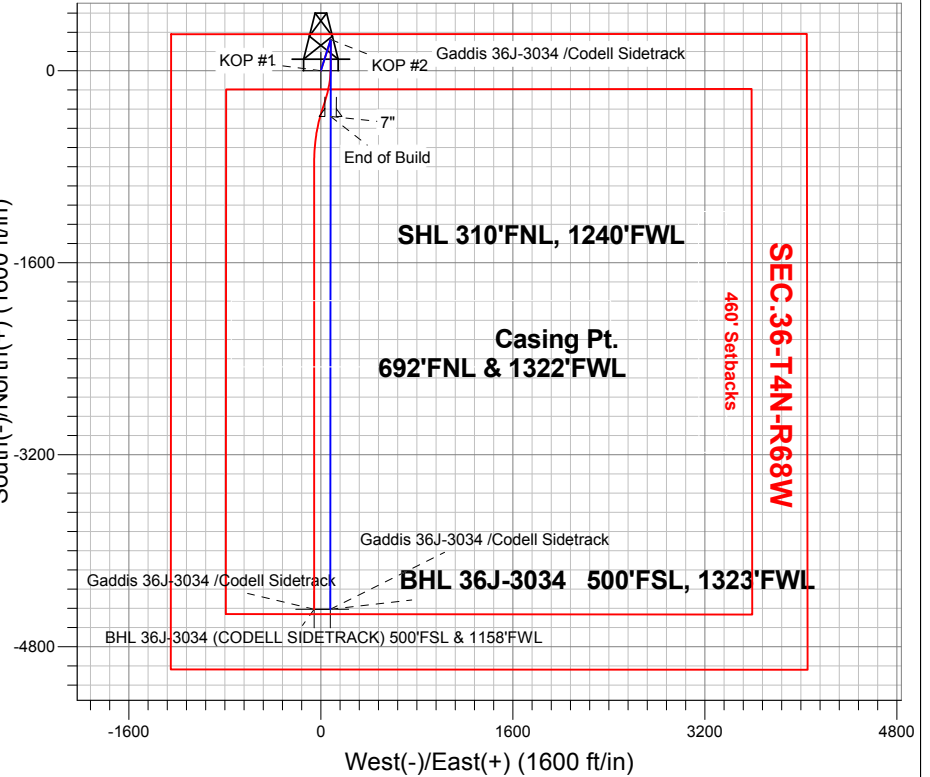
Magnetic Field
Strength: 52798.0snT
Dip Angle: 66.84°
Date: 10/16/2013
Model: IGRF2010

ANNOTATIONS

TVD	MD	Annotation
3000.0	3000.0	KOP #1
6636.8	6655.0	KOP #2
7273.4	7660.3	End of Build

Gaddis Pad Sec.36-T4N-R68W
Gaddis 36J-3034 /Codell Sidetrack
Plan #4 (10-16-13)
12:00, October 21 2013

South(-)/North(+) (1600 ft/in)



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	Target	VSec
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	3000.0	0.00	0.00	3000.0	0.0	0.0	0.00	0.00	0.0	
3	3411.3	8.23	17.70	3409.9	28.1	9.0	2.00	17.70	-27.9	
4	4906.9	8.23	17.70	4890.1	231.9	74.0	0.00	0.00	-230.6	
5	5318.2	0.00	0.00	5300.0	260.0	83.0	2.00	180.00	-258.5	
6	6655.0	0.00	0.00	6636.8	260.0	83.0	0.00	0.00	-258.5	
7	7660.3	90.48	180.06	7273.4	-382.0	82.3	9.00	180.06	383.3	
8	11766.8	90.48	180.06	7239.0	-4488.2	78.1	0.00	0.00	4488.9	BHL 36J-3034 500'FSL, 1323'FWL

BHL 36J-3034 500'FSL, 1323'FWL

BHL 36J-3034 (CODELL SIDETRACK) 500'FSL & 1158'FWL

Vertical Section at 179.00° (550 ft/in)



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.36-T4N-R68W

Gaddis Pad Sec.36-T4N-R68W

Gaddis 36J-3034 /Codell Sidetrack

Wellbore 1 Gaddis 36J-3034

Plan: Plan #4 (10-16-13)

Standard Planning Report

21 October, 2013

Database:	Landmark	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Project:	SEC.36-T4N-R68W	MD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Site:	Gaddis Pad Sec.36-T4N-R68W	North Reference:	True
Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore 1 Gaddis 36J-3034		
Design:	Plan #4 (10-16-13)		

Project	SEC.36-T4N-R68W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site		Gaddis Pad Sec.36-T4N-R68W			
Site Position:		Northing:	1,344,049.99 ft	Latitude:	40.276540
From:	Lat/Long	Easting:	3,151,709.26 ft	Longitude:	-104.956270
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.35 °

Well	Gaddis 36J-3034 /Codell Sidetrack					
Well Position	+N/-S	0.0 ft	Northing:	1,344,049.97 ft	Latitude:	40.276540
	+E/-W	0.0 ft	Easting:	3,151,709.26 ft	Longitude:	-104.956270
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,058.0 ft

Wellbore	Wellbore 1 Gaddis 36J-3034				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/16/2013	8.64	66.84	52,798

Design	Plan #4 (10-16-13)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	179.00

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,411.3	8.23	17.70	3,409.9	28.1	9.0	2.00	2.00	0.00	17.70	
4,906.9	8.23	17.70	4,890.1	231.9	74.0	0.00	0.00	0.00	0.00	
5,318.2	0.00	0.00	5,300.0	260.0	83.0	2.00	-2.00	0.00	180.00	
6,655.0	0.00	0.00	6,636.8	260.0	83.0	0.00	0.00	0.00	0.00	
7,660.3	90.48	180.06	7,273.4	-382.0	82.3	9.00	9.00	0.00	180.06	
11,766.8	90.48	180.06	7,239.0	-4,488.2	78.1	0.00	0.00	0.00	0.00	BHL 36J-3034 500

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Project:	SEC.36-T4N-R68W	MD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Site:	Gaddis Pad Sec.36-T4N-R68W	North Reference:	True
Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore 1 Gaddis 36J-3034		
Design:	Plan #4 (10-16-13)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
9.0	0.00	0.00	9.0	0.0	0.0	0.0	0.00	0.00	0.00
SHL 310'FNL, 1240'FWL									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP #1									
3,100.0	2.00	17.70	3,100.0	1.7	0.5	-1.7	2.00	2.00	0.00
3,200.0	4.00	17.70	3,199.8	6.6	2.1	-6.6	2.00	2.00	0.00
3,300.0	6.00	17.70	3,299.5	15.0	4.8	-14.9	2.00	2.00	0.00
3,400.0	8.00	17.70	3,398.7	26.6	8.5	-26.4	2.00	2.00	0.00
3,411.3	8.23	17.70	3,409.9	28.1	9.0	-27.9	2.00	2.00	0.00
3,500.0	8.23	17.70	3,497.7	40.2	12.8	-39.9	0.00	0.00	0.00
3,600.0	8.23	17.70	3,596.6	53.8	17.2	-53.5	0.00	0.00	0.00
3,700.0	8.23	17.70	3,695.6	67.4	21.5	-67.0	0.00	0.00	0.00
3,800.0	8.23	17.70	3,794.6	81.1	25.9	-80.6	0.00	0.00	0.00
3,900.0	8.23	17.70	3,893.6	94.7	30.2	-94.1	0.00	0.00	0.00
4,000.0	8.23	17.70	3,992.5	108.3	34.6	-107.7	0.00	0.00	0.00
4,100.0	8.23	17.70	4,091.5	121.9	38.9	-121.2	0.00	0.00	0.00
4,200.0	8.23	17.70	4,190.5	135.6	43.3	-134.8	0.00	0.00	0.00
4,300.0	8.23	17.70	4,289.4	149.2	47.6	-148.4	0.00	0.00	0.00
4,400.0	8.23	17.70	4,388.4	162.8	52.0	-161.9	0.00	0.00	0.00
4,500.0	8.23	17.70	4,487.4	176.5	56.3	-175.5	0.00	0.00	0.00
4,600.0	8.23	17.70	4,586.4	190.1	60.7	-189.0	0.00	0.00	0.00
4,700.0	8.23	17.70	4,685.3	203.7	65.0	-202.6	0.00	0.00	0.00

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Site:	Gaddis Pad Sec.36-T4N-R68W	North Reference:	True
Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore 1 Gaddis 36J-3034		
Design:	Plan #4 (10-16-13)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,800.0	8.23	17.70	4,784.3	217.4	69.4	-216.1	0.00	0.00	0.00
4,900.0	8.23	17.70	4,883.3	231.0	73.7	-229.7	0.00	0.00	0.00
4,906.9	8.23	17.70	4,890.1	231.9	74.0	-230.6	0.00	0.00	0.00
5,000.0	6.36	17.70	4,982.4	243.2	77.6	-241.8	2.00	-2.00	0.00
5,100.0	4.36	17.70	5,082.0	252.1	80.5	-250.6	2.00	-2.00	0.00
5,200.0	2.36	17.70	5,181.8	257.7	82.3	-256.2	2.00	-2.00	0.00
5,300.0	0.36	17.70	5,281.8	259.9	83.0	-258.5	2.00	-2.00	0.00
5,318.2	0.00	0.00	5,300.0	260.0	83.0	-258.5	2.00	-2.00	0.00
5,400.0	0.00	0.00	5,381.8	260.0	83.0	-258.5	0.00	0.00	0.00
5,500.0	0.00	0.00	5,481.8	260.0	83.0	-258.5	0.00	0.00	0.00
5,600.0	0.00	0.00	5,581.8	260.0	83.0	-258.5	0.00	0.00	0.00
5,700.0	0.00	0.00	5,681.8	260.0	83.0	-258.5	0.00	0.00	0.00
5,800.0	0.00	0.00	5,781.8	260.0	83.0	-258.5	0.00	0.00	0.00
5,900.0	0.00	0.00	5,881.8	260.0	83.0	-258.5	0.00	0.00	0.00
6,000.0	0.00	0.00	5,981.8	260.0	83.0	-258.5	0.00	0.00	0.00
6,100.0	0.00	0.00	6,081.8	260.0	83.0	-258.5	0.00	0.00	0.00
6,200.0	0.00	0.00	6,181.8	260.0	83.0	-258.5	0.00	0.00	0.00
6,300.0	0.00	0.00	6,281.8	260.0	83.0	-258.5	0.00	0.00	0.00
6,400.0	0.00	0.00	6,381.8	260.0	83.0	-258.5	0.00	0.00	0.00
6,500.0	0.00	0.00	6,481.8	260.0	83.0	-258.5	0.00	0.00	0.00
6,600.0	0.00	0.00	6,581.8	260.0	83.0	-258.5	0.00	0.00	0.00
6,655.0	0.00	0.00	6,636.8	260.0	83.0	-258.5	0.00	0.00	0.00
KOP #2									
6,700.0	4.05	180.06	6,681.8	258.4	83.0	-256.9	9.00	9.00	0.00
6,800.0	13.05	180.06	6,780.5	243.6	83.0	-242.1	9.00	9.00	0.00
6,900.0	22.05	180.06	6,875.8	213.4	83.0	-212.0	9.00	9.00	0.00
7,000.0	31.05	180.06	6,965.2	168.8	82.9	-167.3	9.00	9.00	0.00
7,002.2	31.24	180.06	6,967.0	167.7	82.9	-166.2	9.00	9.00	0.00
Sharon Springs									
7,100.0	40.05	180.06	7,046.4	110.7	82.8	-109.3	9.00	9.00	0.00
7,176.7	46.95	180.06	7,102.0	58.0	82.8	-56.5	9.00	9.00	0.00
Nio A									
7,200.0	49.05	180.06	7,117.6	40.6	82.8	-39.2	9.00	9.00	0.00
7,296.3	57.71	180.06	7,175.0	-36.6	82.7	38.0	9.00	9.00	0.00
Nio B									
7,300.0	58.05	180.06	7,177.0	-39.7	82.7	41.2	9.00	9.00	0.00
7,400.0	67.05	180.06	7,223.0	-128.4	82.6	129.8	9.00	9.00	0.00
7,457.4	72.22	180.06	7,243.0	-182.2	82.5	183.6	9.00	9.00	0.00
Nio C									
7,500.0	76.05	180.06	7,254.6	-223.1	82.5	224.5	9.00	9.00	0.00
7,600.0	85.05	180.06	7,271.0	-321.7	82.4	323.1	9.00	9.00	0.00
7,660.3	90.48	180.06	7,273.4	-381.9	82.3	383.3	9.00	9.00	0.00
End of Build - 7"									
7,700.0	90.48	180.06	7,273.1	-421.6	82.3	423.0	0.01	0.01	0.00
7,800.0	90.48	180.06	7,272.2	-521.6	82.2	523.0	0.00	0.00	0.00
7,900.0	90.48	180.06	7,271.4	-621.6	82.1	622.9	0.00	0.00	0.00
8,000.0	90.48	180.06	7,270.6	-721.6	82.0	722.9	0.00	0.00	0.00
8,100.0	90.48	180.06	7,269.7	-821.6	81.9	822.9	0.00	0.00	0.00
8,200.0	90.48	180.06	7,268.9	-921.6	81.8	922.9	0.00	0.00	0.00
8,300.0	90.48	180.06	7,268.0	-1,021.6	81.7	1,022.9	0.00	0.00	0.00
8,400.0	90.48	180.06	7,267.2	-1,121.6	81.6	1,122.8	0.00	0.00	0.00

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Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore 1 Gaddis 36J-3034		
Design:	Plan #4 (10-16-13)		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,500.0	90.48	180.06	7,266.4	-1,221.6	81.5	1,222.8	0.00	0.00	0.00
8,600.0	90.48	180.06	7,265.5	-1,321.6	81.4	1,322.8	0.00	0.00	0.00
8,700.0	90.48	180.06	7,264.7	-1,421.6	81.3	1,422.8	0.00	0.00	0.00
8,800.0	90.48	180.06	7,263.9	-1,521.6	81.2	1,522.7	0.00	0.00	0.00
8,900.0	90.48	180.06	7,263.0	-1,621.6	81.1	1,622.7	0.00	0.00	0.00
9,000.0	90.48	180.06	7,262.2	-1,721.6	81.0	1,722.7	0.00	0.00	0.00
9,100.0	90.48	180.06	7,261.3	-1,821.6	80.9	1,822.7	0.00	0.00	0.00
9,200.0	90.48	180.06	7,260.5	-1,921.6	80.8	1,922.7	0.00	0.00	0.00
9,300.0	90.48	180.06	7,259.7	-2,021.5	80.7	2,022.6	0.00	0.00	0.00
9,400.0	90.48	180.06	7,258.8	-2,121.5	80.6	2,122.6	0.00	0.00	0.00
9,500.0	90.48	180.06	7,258.0	-2,221.5	80.5	2,222.6	0.00	0.00	0.00
9,600.0	90.48	180.06	7,257.2	-2,321.5	80.4	2,322.6	0.00	0.00	0.00
9,700.0	90.48	180.06	7,256.3	-2,421.5	80.3	2,422.6	0.00	0.00	0.00
9,800.0	90.48	180.06	7,255.5	-2,521.5	80.2	2,522.5	0.00	0.00	0.00
9,900.0	90.48	180.06	7,254.6	-2,621.5	80.1	2,622.5	0.00	0.00	0.00
10,000.0	90.48	180.06	7,253.8	-2,721.5	79.9	2,722.5	0.00	0.00	0.00
10,100.0	90.48	180.06	7,253.0	-2,821.5	79.8	2,822.5	0.00	0.00	0.00
10,200.0	90.48	180.06	7,252.1	-2,921.5	79.7	2,922.5	0.00	0.00	0.00
10,300.0	90.48	180.06	7,251.3	-3,021.5	79.6	3,022.4	0.00	0.00	0.00
10,400.0	90.48	180.06	7,250.4	-3,121.5	79.5	3,122.4	0.00	0.00	0.00
10,500.0	90.48	180.06	7,249.6	-3,221.5	79.4	3,222.4	0.00	0.00	0.00
10,600.0	90.48	180.06	7,248.8	-3,321.5	79.3	3,322.4	0.00	0.00	0.00
10,700.0	90.48	180.06	7,247.9	-3,421.5	79.2	3,422.4	0.00	0.00	0.00
10,800.0	90.48	180.06	7,247.1	-3,521.5	79.1	3,522.3	0.00	0.00	0.00
10,900.0	90.48	180.06	7,246.3	-3,621.5	79.0	3,622.3	0.00	0.00	0.00
11,000.0	90.48	180.06	7,245.4	-3,721.5	78.9	3,722.3	0.00	0.00	0.00
11,100.0	90.48	180.06	7,244.6	-3,821.5	78.8	3,822.3	0.00	0.00	0.00
11,200.0	90.48	180.06	7,243.7	-3,921.5	78.7	3,922.3	0.00	0.00	0.00
11,300.0	90.48	180.06	7,242.9	-4,021.5	78.6	4,022.2	0.00	0.00	0.00
11,400.0	90.48	180.06	7,242.1	-4,121.5	78.5	4,122.2	0.00	0.00	0.00
11,500.0	90.48	180.06	7,241.2	-4,221.5	78.4	4,222.2	0.00	0.00	0.00
11,600.0	90.48	180.06	7,240.4	-4,321.5	78.3	4,322.2	0.00	0.00	0.00
11,700.0	90.48	180.06	7,239.6	-4,421.5	78.2	4,422.2	0.00	0.00	0.00
11,765.6	90.48	180.06	7,239.0	-4,487.0	78.1	4,487.7	0.00	0.00	0.00
BHL 36J-3034 (CODELL SIDETRACK) 500'FSL & 1158'FWL									
11,766.8	90.48	180.06	7,239.0	-4,488.2	78.1	4,488.9	0.00	0.00	0.00
BHL 36J-3034 500'FSL, 1323'FWL									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,660.3	7,273.4	7"	7	8-3/4

Database:	Landmark	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	TVD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Project:	SEC.36-T4N-R68W	MD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Site:	Gaddis Pad Sec.36-T4N-R68W	North Reference:	True
Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore 1 Gaddis 36J-3034		
Design:	Plan #4 (10-16-13)		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
7,002.2	6,967.0	Sharon Springs		0.00		
7,176.7	7,102.0	Nio A		0.00		
7,296.3	7,175.0	Nio B		0.00		
7,457.4	7,243.0	Nio C		0.00		
	7,375.0	Ft Hayes		0.00		
	7,396.0	Codell		0.00		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
3,000.0	3,000.0	0.0	0.0	KOP #1	
6,655.0	6,636.8	260.0	83.0	KOP #2	
7,660.3	7,273.4	-381.9	82.3	End of Build	



PETROLEUM DEVELOPMENT CORP Weld County CO

SEC.36-T4N-R68W

Gaddis Pad Sec.36-T4N-R68W

Gaddis 36J-3034 /Codell Sidetrack

Wellbore 1 Gaddis 36J-3034

Plan #4 (10-16-13)

Anticollision Report

22 October, 2013



Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore 1 Gaddis 36J-3034	Database:	Landmark
Reference Design:	Plan #4 (10-16-13)	Offset TVD Reference:	Offset Datum

Reference	Plan #4 (10-16-13)		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 10/17/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,766.0	Plan #4 (10-16-13) (Wellbore 1 Gaddis 36	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Gaddis Pad Sec.36-T4N-R68W						
Gaddis 36J-223 - Wellbore #1 - Plan #2 (10-16-13)	1,500.0	1,499.0	27.9	21.4	4.282	CC, ES
Gaddis 36J-223 - Wellbore #1 - Plan #2 (10-16-13)	11,766.8	11,643.9	334.0	159.6	1.914	SF
Gaddis 36J-243 - Wellbore #1 - Plan #2 (10-16-13)	2,000.0	2,000.0	30.7	21.9	3.501	CC, ES
Gaddis 36J-243 - Wellbore #1 - Plan #2 (10-16-13)	11,766.8	11,637.5	333.4	158.8	1.909	SF
Gaddis 36J-3034 /Codell Sidetrack - Wellbore #2 Codell	7,218.0	7,210.0	0.0	0.0	10,000.000	CC, ES
Gaddis 36J-3034 /Codell Sidetrack - Wellbore #2 Codell	11,766.8	11,803.0	205.7	102.8	1.998	SF
Gaddis 36M-443 - Wellbore #1 - Plan #4 (10-16-13)	200.0	199.0	58.6	57.9	87.190	CC, ES
Gaddis 36M-443 - Wellbore #1 - Plan #4 (10-16-13)	11,766.8	11,859.4	733.6	560.8	4.246	SF

Offset Design												
Gaddis Pad Sec.36-T4N-R68W - Gaddis 36J-223 - Wellbore #1 - Plan #2 (10-16-13)												
Survey Program: 0-MWD												
Reference												
Offset												
Semi Major Axis												
Distance												
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor
0.0	0.0	0.0	0.0	0.0	0.0	89.99	0.0	27.9	27.9			
100.0	100.0	99.0	99.0	0.1	0.1	89.99	0.0	27.9	27.9	27.7	0.22	124.765
200.0	200.0	199.0	199.0	0.3	0.3	89.99	0.0	27.9	27.9	27.2	0.67	41.519
300.0	300.0	299.0	299.0	0.6	0.6	89.99	0.0	27.9	27.9	26.8	1.12	24.878
400.0	400.0	399.0	399.0	0.8	0.8	89.99	0.0	27.9	27.9	26.3	1.57	17.760
500.0	500.0	499.0	499.0	1.0	1.0	89.99	0.0	27.9	27.9	25.9	2.02	13.809
600.0	600.0	599.0	599.0	1.2	1.2	89.99	0.0	27.9	27.9	25.4	2.47	11.296
700.0	700.0	699.0	699.0	1.5	1.5	89.99	0.0	27.9	27.9	25.0	2.92	9.557
800.0	800.0	799.0	799.0	1.7	1.7	89.99	0.0	27.9	27.9	24.5	3.37	8.282
900.0	900.0	899.0	899.0	1.9	1.9	89.99	0.0	27.9	27.9	24.1	3.82	7.307
1,000.0	1,000.0	999.0	999.0	2.1	2.1	89.99	0.0	27.9	27.9	23.6	4.27	6.537
1,100.0	1,100.0	1,099.0	1,099.0	2.4	2.4	89.99	0.0	27.9	27.9	23.2	4.72	5.914
1,200.0	1,200.0	1,199.0	1,199.0	2.6	2.6	89.99	0.0	27.9	27.9	22.7	5.17	5.400
1,300.0	1,300.0	1,299.0	1,299.0	2.8	2.8	89.99	0.0	27.9	27.9	22.3	5.62	4.968
1,400.0	1,400.0	1,399.0	1,399.0	3.0	3.0	89.99	0.0	27.9	27.9	21.8	6.07	4.600
1,500.0	1,500.0	1,499.0	1,499.0	3.3	3.3	89.99	0.0	27.9	27.9	21.4	6.52	4.282 CC, ES

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore 1 Gaddis 36J-3034	Database:	Landmark
Reference Design:	Plan #4 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design Gaddis Pad Sec.36-T4N-R68W - Gaddis 36J-223 - Wellbore #1 - Plan #2 (10-16-13)														Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Warning									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
1,600.0	1,600.0	1,598.2	1,598.2	3.5	3.5	88.14	0.9	29.3	29.3	22.4	6.96	4.214			
1,700.0	1,700.0	1,697.1	1,696.9	3.7	3.7	83.51	3.8	33.5	33.8	26.4	7.40	4.569			
1,800.0	1,800.0	1,795.6	1,795.0	3.9	3.9	78.07	8.6	40.5	41.6	33.8	7.83	5.308			
1,900.0	1,900.0	1,893.9	1,892.6	4.2	4.1	73.24	15.1	50.1	52.7	44.5	8.28	6.371			
2,000.0	2,000.0	1,993.1	1,991.0	4.4	4.4	69.91	22.1	60.5	64.9	56.2	8.72	7.442			
2,100.0	2,100.0	2,092.3	2,089.5	4.6	4.6	67.63	29.2	70.9	77.2	68.0	9.17	8.424			
2,200.0	2,200.0	2,191.5	2,187.9	4.8	4.9	65.98	36.2	81.2	89.6	80.0	9.61	9.321			
2,300.0	2,300.0	2,290.7	2,286.3	5.1	5.2	64.73	43.2	91.6	102.1	92.0	10.06	10.142			
2,400.0	2,400.0	2,389.9	2,384.7	5.3	5.4	63.75	50.3	101.9	114.6	104.0	10.52	10.893			
2,500.0	2,500.0	2,489.1	2,483.1	5.5	5.7	62.97	57.3	112.3	127.1	116.1	10.97	11.584			
2,600.0	2,600.0	2,588.3	2,581.5	5.7	6.0	62.32	64.3	122.7	139.6	128.2	11.43	12.219			
2,700.0	2,700.0	2,687.5	2,679.9	6.0	6.3	61.79	71.4	133.0	152.2	140.3	11.88	12.805			
2,800.0	2,800.0	2,786.7	2,778.3	6.2	6.6	61.33	78.4	143.4	164.7	152.4	12.34	13.347			
2,900.0	2,900.0	2,885.9	2,876.7	6.4	6.9	60.94	85.4	153.8	177.3	164.5	12.80	13.850			
3,000.0	3,000.0	2,985.1	2,975.1	6.6	7.2	60.60	92.5	164.1	189.9	176.6	13.26	14.317			
3,100.0	3,100.0	3,084.4	3,073.7	6.9	7.5	42.78	99.5	174.5	201.2	187.5	13.66	14.725			
3,200.0	3,199.8	3,184.0	3,172.4	7.1	7.8	43.35	106.6	184.9	210.0	195.9	14.11	14.878			
3,300.0	3,299.5	3,283.7	3,271.3	7.3	8.1	44.54	113.7	195.3	216.3	201.7	14.56	14.857			
3,400.0	3,398.7	3,383.3	3,370.2	7.5	8.4	46.33	120.7	205.7	220.3	205.3	15.01	14.682			
3,500.0	3,497.7	3,482.9	3,469.0	7.8	8.7	48.50	127.8	216.1	223.1	207.6	15.48	14.415			
3,600.0	3,596.6	3,582.5	3,567.8	8.0	9.0	50.63	134.9	226.5	226.2	210.3	15.96	14.172			
3,700.0	3,695.6	3,682.1	3,666.6	8.3	9.3	52.70	141.9	236.9	229.7	213.2	16.46	13.953			
3,800.0	3,794.6	3,781.7	3,765.4	8.5	9.6	54.71	149.0	247.4	233.4	216.4	16.97	13.755			
3,900.0	3,893.6	3,881.3	3,864.2	8.8	9.9	56.65	156.0	257.8	237.4	219.9	17.48	13.575			
4,000.0	3,992.5	3,980.9	3,963.0	9.0	10.2	58.52	163.1	268.2	241.6	223.6	18.01	13.413			
4,100.0	4,091.5	4,080.5	4,061.8	9.3	10.6	60.33	170.2	278.6	246.1	227.6	18.55	13.265			
4,200.0	4,190.5	4,180.1	4,160.6	9.6	10.9	62.07	177.2	289.0	250.9	231.8	19.10	13.131			
4,300.0	4,289.4	4,279.7	4,259.4	9.9	11.2	63.75	184.3	299.4	255.8	236.2	19.66	13.010			
4,400.0	4,388.4	4,379.3	4,358.2	10.2	11.5	65.36	191.4	309.8	261.0	240.8	20.23	12.900			
4,500.0	4,487.4	4,478.9	4,457.0	10.4	11.8	66.91	198.4	320.2	266.4	245.6	20.81	12.800			
4,600.0	4,586.4	4,578.5	4,555.8	10.7	12.1	68.39	205.5	330.6	272.0	250.6	21.40	12.709			
4,700.0	4,685.3	4,678.1	4,654.6	11.0	12.4	69.82	212.6	341.0	277.7	255.7	21.99	12.628			
4,800.0	4,784.3	4,777.7	4,753.4	11.3	12.8	71.19	219.6	351.4	283.6	261.0	22.59	12.554			
4,900.0	4,883.3	4,877.3	4,852.2	11.6	13.1	72.50	226.7	361.8	289.7	266.5	23.20	12.487			
5,000.0	4,982.4	4,977.0	4,951.1	11.9	13.4	73.60	233.7	372.2	296.3	272.5	23.76	12.468			
5,100.0	5,082.0	5,076.7	5,050.0	12.1	13.7	74.04	240.8	382.6	304.0	279.7	24.26	12.529			
5,200.0	5,181.8	5,177.3	5,149.8	12.3	14.0	73.88	247.9	393.1	312.6	287.9	24.71	12.651			
5,300.0	5,281.8	5,286.8	5,258.7	12.5	14.3	73.29	254.3	402.5	320.3	295.2	25.08	12.770			
5,400.0	5,381.8	5,396.8	5,368.5	12.7	14.5	90.30	258.3	408.4	325.6	300.2	25.44	12.801			
5,500.0	5,481.8	5,507.2	5,478.8	12.9	14.7	90.01	260.0	410.8	327.8	302.0	25.83	12.694			
5,600.0	5,581.8	5,609.2	5,580.8	13.1	14.9	90.00	260.0	410.9	327.9	301.7	26.22	12.507			
5,700.0	5,681.8	5,709.2	5,680.8	13.3	15.0	90.00	260.0	410.9	327.9	301.3	26.62	12.316			
5,800.0	5,781.8	5,809.2	5,780.8	13.5	15.2	90.00	260.0	410.9	327.9	300.9	27.03	12.130			
5,900.0	5,881.8	5,909.2	5,880.8	13.7	15.4	90.00	260.0	410.9	327.9	300.5	27.44	11.949			
6,000.0	5,981.8	6,009.2	5,980.8	13.9	15.6	90.00	260.0	410.9	327.9	300.1	27.85	11.773			
6,100.0	6,081.8	6,109.2	6,080.8	14.1	15.8	90.00	260.0	410.9	327.9	299.6	28.26	11.602			
6,200.0	6,181.8	6,209.2	6,180.8	14.3	16.0	90.00	260.0	410.9	327.9	299.2	28.68	11.435			
6,300.0	6,281.8	6,309.2	6,280.8	14.5	16.1	90.00	260.0	410.9	327.9	298.8	29.09	11.272			
6,400.0	6,381.8	6,409.2	6,380.8	14.8	16.3	90.00	260.0	410.9	327.9	298.4	29.50	11.114			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore 1 Gaddis 36J-3034	Database:	Landmark
Reference Design:	Plan #4 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design Gaddis Pad Sec.36-T4N-R68W - Gaddis 36J-223 - Wellbore #1 - Plan #2 (10-16-13)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
6,463.1	6,444.9	6,472.3	6,443.9	14.9	16.4	90.02	259.9	410.9	327.9	298.1	29.76	11.017		
6,500.0	6,481.8	6,509.1	6,480.7	15.0	16.5	90.28	258.4	410.9	327.9	298.0	29.91	10.963		
6,600.0	6,581.8	6,607.3	6,578.1	15.2	16.6	92.49	245.8	410.9	328.2	297.9	30.31	10.828		
6,700.0	6,681.8	6,701.3	6,668.9	15.4	16.6	-83.61	222.1	410.9	330.1	299.4	30.70	10.752		
6,800.0	6,780.5	6,792.8	6,754.0	15.5	16.7	-79.79	188.5	410.9	333.4	302.5	30.91	10.787		
6,900.0	6,875.8	6,882.8	6,833.1	15.5	16.7	-76.61	145.8	410.8	337.4	306.4	30.94	10.902		
7,000.0	6,965.2	6,971.6	6,905.7	15.5	16.7	-74.13	94.8	410.8	341.2	310.3	30.84	11.064		
7,100.0	7,046.4	7,059.5	6,971.3	15.5	16.7	-72.35	36.4	410.7	344.3	313.6	30.67	11.224		
7,200.0	7,117.6	7,150.0	7,031.4	15.6	16.7	-71.26	-31.3	410.7	346.3	315.7	30.60	11.318		
7,300.0	7,177.0	7,234.0	7,079.7	15.7	16.8	-70.92	-100.0	410.6	347.1	316.3	30.78	11.277		
7,400.0	7,223.0	7,321.1	7,121.4	16.1	17.0	-71.27	-176.4	410.6	346.4	315.1	31.34	11.052		
7,500.0	7,254.6	7,408.5	7,154.3	16.6	17.5	-72.32	-257.3	410.5	344.4	312.0	32.40	10.631		
7,600.0	7,271.0	7,496.4	7,177.8	17.3	18.1	-74.08	-341.9	410.5	341.4	307.4	33.95	10.056		
7,700.0	7,273.1	7,585.3	7,191.6	18.2	18.8	-76.23	-429.7	410.4	337.9	302.1	35.84	9.429		
7,800.0	7,272.2	7,677.3	7,195.2	19.2	19.7	-76.95	-521.6	410.3	336.8	299.0	37.83	8.904		
7,900.0	7,271.4	7,777.3	7,194.8	20.3	20.9	-77.03	-621.6	410.3	336.8	296.7	40.10	8.399		
8,000.0	7,270.6	7,877.3	7,194.5	21.6	22.1	-77.12	-721.6	410.2	336.7	294.1	42.57	7.909		
8,100.0	7,269.7	7,977.3	7,194.2	22.9	23.4	-77.20	-821.6	410.1	336.6	291.4	45.22	7.443		
8,200.0	7,268.9	8,077.3	7,193.8	24.4	24.8	-77.29	-921.6	410.0	336.5	288.5	48.02	7.007		
8,300.0	7,268.0	8,177.3	7,193.5	25.9	26.3	-77.37	-1,021.6	410.0	336.4	285.5	50.95	6.603		
8,400.0	7,267.2	8,277.3	7,193.2	27.4	27.8	-77.46	-1,121.6	409.9	336.3	282.4	53.99	6.230		
8,500.0	7,266.4	8,377.3	7,192.8	29.0	29.4	-77.54	-1,221.6	409.8	336.3	279.1	57.11	5.888		
8,600.0	7,265.5	8,477.3	7,192.5	30.6	31.0	-77.63	-1,321.6	409.8	336.2	275.9	60.31	5.574		
8,700.0	7,264.7	8,577.3	7,192.2	32.3	32.6	-77.71	-1,421.6	409.7	336.1	272.5	63.57	5.287		
8,800.0	7,263.9	8,677.3	7,191.8	34.0	34.3	-77.80	-1,521.6	409.6	336.0	269.1	66.89	5.023		
8,900.0	7,263.0	8,777.3	7,191.5	35.7	36.0	-77.88	-1,621.6	409.5	335.9	265.7	70.26	4.781		
9,000.0	7,262.2	8,877.3	7,191.2	37.4	37.7	-77.97	-1,721.6	409.5	335.9	262.2	73.67	4.559		
9,100.0	7,261.3	8,977.3	7,190.8	39.1	39.4	-78.06	-1,821.6	409.4	335.8	258.7	77.12	4.354		
9,200.0	7,260.5	9,077.3	7,190.5	40.9	41.2	-78.14	-1,921.6	409.3	335.7	255.1	80.60	4.165		
9,300.0	7,259.7	9,177.3	7,190.2	42.7	42.9	-78.23	-2,021.6	409.2	335.6	251.5	84.10	3.991		
9,400.0	7,258.8	9,277.3	7,189.8	44.5	44.7	-78.31	-2,121.6	409.2	335.6	247.9	87.64	3.829		
9,500.0	7,258.0	9,377.3	7,189.5	46.3	46.5	-78.40	-2,221.6	409.1	335.5	244.3	91.19	3.679		
9,600.0	7,257.2	9,477.3	7,189.2	48.1	48.3	-78.48	-2,321.6	409.0	335.4	240.7	94.76	3.540		
9,700.0	7,256.3	9,577.3	7,188.9	49.9	50.1	-78.57	-2,421.6	409.0	335.3	237.0	98.36	3.410		
9,800.0	7,255.5	9,677.3	7,188.5	51.7	51.9	-78.65	-2,521.6	408.9	335.3	233.3	101.97	3.288		
9,900.0	7,254.6	9,777.3	7,188.2	53.6	53.7	-78.74	-2,621.6	408.8	335.2	229.6	105.59	3.175		
10,000.0	7,253.8	9,877.3	7,187.9	55.4	55.6	-78.83	-2,721.6	408.7	335.1	225.9	109.23	3.068		
10,100.0	7,253.0	9,977.3	7,187.5	57.2	57.4	-78.91	-2,821.6	408.7	335.1	222.2	112.88	2.969		
10,200.0	7,252.1	10,077.3	7,187.2	59.1	59.2	-79.00	-2,921.6	408.6	335.0	218.5	116.54	2.875		
10,300.0	7,251.3	10,177.3	7,186.9	60.9	61.1	-79.08	-3,021.6	408.5	334.9	214.7	120.21	2.786		
10,400.0	7,250.4	10,277.3	7,186.5	62.8	62.9	-79.17	-3,121.6	408.4	334.9	211.0	123.89	2.703		
10,500.0	7,249.6	10,377.3	7,186.2	64.6	64.8	-79.26	-3,221.6	408.4	334.8	207.2	127.58	2.624		
10,600.0	7,248.8	10,477.2	7,185.9	66.5	66.6	-79.34	-3,321.6	408.3	334.7	203.5	131.28	2.550		
10,700.0	7,247.9	10,577.2	7,185.5	68.4	68.5	-79.43	-3,421.6	408.2	334.7	199.7	134.98	2.479		
10,800.0	7,247.1	10,677.2	7,185.2	70.2	70.4	-79.51	-3,521.6	408.2	334.6	195.9	138.69	2.413		
10,900.0	7,246.3	10,777.2	7,184.9	72.1	72.2	-79.60	-3,621.6	408.1	334.5	192.1	142.41	2.349		
11,000.0	7,245.4	10,877.2	7,184.5	74.0	74.1	-79.69	-3,721.6	408.0	334.5	188.3	146.14	2.289		
11,100.0	7,244.6	10,977.2	7,184.2	75.9	76.0	-79.77	-3,821.6	407.9	334.4	184.6	149.87	2.231		
11,200.0	7,243.7	11,077.2	7,183.9	77.7	77.9	-79.86	-3,921.6	407.9	334.4	180.8	153.61	2.177		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore 1 Gaddis 36J-3034	Database:	Landmark
Reference Design:	Plan #4 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design Gaddis Pad Sec.36-T4N-R68W - Gaddis 36J-223 - Wellbore #1 - Plan #2 (10-16-13)													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
11,300.0	7,242.9	11,177.2	7,183.5	79.6	79.7	-79.95	-4,021.5	407.8	334.3	177.0	157.35	2.125		
11,400.0	7,242.1	11,277.2	7,183.2	81.5	81.6	-80.03	-4,121.5	407.7	334.2	173.1	161.10	2.075		
11,500.0	7,241.2	11,377.2	7,182.9	83.4	83.5	-80.12	-4,221.5	407.6	334.2	169.3	164.86	2.027		
11,600.0	7,240.4	11,477.2	7,182.6	85.3	85.4	-80.20	-4,321.5	407.6	334.1	165.5	168.61	1.982		
11,700.0	7,239.6	11,577.2	7,182.2	87.2	87.2	-80.29	-4,421.5	407.5	334.1	161.7	172.37	1.938		
11,766.8	7,239.0	11,643.9	7,182.0	88.2	88.4	-80.35	-4,488.2	407.5	334.0	159.6	174.49	1.914 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore 1 Gaddis 36J-3034	Database:	Landmark
Reference Design:	Plan #4 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design Gaddis Pad Sec.36-T4N-R68W - Gaddis 36J-243 - Wellbore #1 - Plan #2 (10-16-13)														Offset Site Error: 0.0 ft
Survey Program: 0-MWD														Offset Well Error: 0.0 ft
Reference	Offset	Semi Major Axis	Distance											Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-90.03	0.0	-30.7	30.7	30.5	0.22	136.557		
100.0	100.0	100.0	100.0	0.1	0.1	-90.03	0.0	-30.7	30.7	30.0	0.67	45.519		
200.0	200.0	200.0	200.0	0.3	0.3	-90.03	0.0	-30.7	30.7	29.6	1.12	27.311		
300.0	300.0	300.0	300.0	0.6	0.6	-90.03	0.0	-30.7	30.7	29.1	1.57	19.508		
400.0	400.0	400.0	400.0	0.8	0.8	-90.03	0.0	-30.7	30.7	28.7	2.02	15.173		
500.0	500.0	500.0	500.0	1.0	1.0	-90.03	0.0	-30.7	30.7	28.2	2.47	12.414		
600.0	600.0	600.0	600.0	1.2	1.2	-90.03	0.0	-30.7	30.7	27.8	2.92	10.504		
700.0	700.0	700.0	700.0	1.5	1.5	-90.03	0.0	-30.7	30.7	27.3	3.37	9.104		
800.0	800.0	800.0	800.0	1.7	1.7	-90.03	0.0	-30.7	30.7	26.9	3.82	8.033		
900.0	900.0	900.0	900.0	1.9	1.9	-90.03	0.0	-30.7	30.7	26.4	4.27	7.187		
1,000.0	1,000.0	1,000.0	1,000.0	2.1	2.1	-90.03	0.0	-30.7	30.7	26.0	4.72	6.503		
1,100.0	1,100.0	1,100.0	1,100.0	2.4	2.4	-90.03	0.0	-30.7	30.7	25.5	5.17	5.937		
1,200.0	1,200.0	1,200.0	1,200.0	2.6	2.6	-90.03	0.0	-30.7	30.7	25.1	5.62	5.462		
1,300.0	1,300.0	1,300.0	1,300.0	2.8	2.8	-90.03	0.0	-30.7	30.7	24.6	6.07	5.058		
1,400.0	1,400.0	1,400.0	1,400.0	3.0	3.0	-90.03	0.0	-30.7	30.7	24.2	6.52	4.709		
1,500.0	1,500.0	1,500.0	1,500.0	3.3	3.3	-90.03	0.0	-30.7	30.7	23.7	6.97	4.405		
1,600.0	1,600.0	1,600.0	1,600.0	3.5	3.5	-90.03	0.0	-30.7	30.7	23.3	7.42	4.138		
1,700.0	1,700.0	1,700.0	1,700.0	3.7	3.7	-90.03	0.0	-30.7	30.7	22.8	7.87	3.902		
1,800.0	1,800.0	1,800.0	1,800.0	3.9	3.9	-90.03	0.0	-30.7	30.7	22.4	8.32	3.691		
1,900.0	1,900.0	1,900.0	1,900.0	4.2	4.2	-90.03	0.0	-30.7	30.7	21.9	8.77	3.501 CC, ES		
2,000.0	2,000.0	2,000.0	2,000.0	4.4	4.4	-90.03	0.0	-30.7	30.7	22.6	9.21	3.456		
2,100.0	2,100.0	2,099.3	2,099.3	4.6	4.6	-87.65	1.3	-31.8	31.8	25.9	9.65	3.681		
2,200.0	2,200.0	2,198.3	2,198.2	4.8	4.8	-81.49	5.3	-35.1	35.5	42.4	10.09	4.199		
2,300.0	2,300.0	2,296.9	2,296.4	5.1	5.0	-73.79	11.8	-40.5	42.4	40.9	10.54	4.883		
2,400.0	2,400.0	2,396.3	2,395.2	5.3	5.3	-67.25	19.8	-47.2	51.5	50.0	10.99	5.554		
2,500.0	2,500.0	2,495.7	2,494.1	5.5	5.5	-62.69	27.9	-54.0	61.0	59.4	11.43	6.196		
2,600.0	2,600.0	2,595.2	2,593.0	5.7	5.8	-59.39	35.9	-60.7	70.8	69.0	11.88	6.803		
2,700.0	2,700.0	2,694.6	2,691.9	6.0	6.0	-56.89	43.9	-67.4	80.9	78.6	12.34	7.376		
2,800.0	2,800.0	2,794.0	2,790.7	6.2	6.3	-54.95	52.0	-74.1	91.0	88.4	12.79	7.913		
2,900.0	2,900.0	2,893.5	2,889.6	6.4	6.5	-53.39	60.0	-80.8	101.2	98.2	13.24	8.419		
3,000.0	3,000.0	2,992.9	2,988.5	6.6	6.8	-52.13	68.1	-87.5	111.5	107.5	13.67	8.865		
3,100.0	3,100.0	3,092.5	3,087.5	6.9	7.0	-69.37	76.1	-94.2	121.2	115.5	14.11	9.186		
3,200.0	3,199.8	3,192.0	3,186.5	7.1	7.3	-70.41	84.2	-101.0	129.7	122.6	14.57	9.415		
3,300.0	3,299.5	3,291.6	3,285.5	7.3	7.6	-72.71	92.2	-107.7	137.1	129.0	15.03	9.581		
3,400.0	3,398.7	3,391.0	3,384.4	7.5	7.8	-76.10	100.3	-114.4	144.0	135.4	15.51	9.734		
3,500.0	3,497.7	3,490.2	3,483.1	7.8	8.1	-80.05	108.3	-121.1	150.9	142.6	16.00	9.911		
3,600.0	3,596.6	3,589.4	3,581.7	8.0	8.4	-83.67	116.3	-127.8	158.6	150.2	16.50	10.106		
3,700.0	3,695.6	3,688.7	3,680.4	8.3	8.6	-86.94	124.3	-134.5	166.7	158.4	17.01	10.312		
3,800.0	3,794.6	3,787.9	3,779.1	8.5	8.9	-89.90	132.3	-141.2	175.4	167.0	17.53	10.525		
3,900.0	3,893.6	3,887.1	3,877.8	8.8	9.2	-92.58	140.4	-147.9	184.5	175.9	18.06	10.741		
4,000.0	3,925.5	3,986.4	3,976.4	9.0	9.5	-95.00	148.4	-154.6	194.0	185.2	18.60	10.958		
4,100.0	4,091.5	4,085.6	4,075.1	9.3	9.7	-97.20	156.4	-161.3	203.8	194.7	19.14	11.174		
4,200.0	4,190.5	4,184.8	4,173.8	9.6	10.0	-99.19	164.4	-168.0	213.8	204.5	19.68	11.387		
4,300.0	4,289.4	4,284.1	4,272.5	9.9	10.3	-101.00	172.5	-174.7	224.1	214.4	20.23	11.596		
4,400.0	4,388.4	4,383.3	4,371.1	10.2	10.6	-102.65	180.5	-181.3	234.6	224.5	20.79	11.800		
4,500.0	4,487.4	4,482.5	4,469.8	10.4	10.9	-104.16	188.5	-188.0	245.3	234.8	21.34	12.000		
4,600.0	4,586.4	4,581.7	4,568.5	10.7	11.1	-105.55	196.5	-194.7	256.1	245.2	21.90	12.194		
4,700.0	4,685.3	4,681.0	4,667.2	11.0	11.4	-106.82	204.6	-201.4	267.1	255.7	22.47	12.382		
4,800.0	4,784.3	4,780.2	4,765.9	11.3	11.7	-107.99	212.6	-208.1	278.2					

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore 1 Gaddis 36J-3034	Database:	Landmark
Reference Design:	Plan #4 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design Gaddis Pad Sec.36-T4N-R68W - Gaddis 36J-243 - Wellbore #1 - Plan #2 (10-16-13)													Offset Site Error: 0.0 ft
Survey Program: 0-MWD													Offset Well Error: 0.0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
4,900.0	4,883.3	4,879.4	4,864.5	11.6	12.0	-109.07	220.6	-214.8	289.4	266.3	23.03	12.565	
5,000.0	4,982.4	4,978.8	4,963.3	11.9	12.3	-109.99	228.6	-221.5	300.1	276.6	23.57	12.732	
5,100.0	5,082.0	5,078.3	5,062.3	12.1	12.6	-110.24	236.7	-228.3	309.7	285.7	24.06	12.872	
5,200.0	5,181.8	5,177.9	5,161.3	12.3	12.9	-109.88	244.7	-235.0	318.2	293.6	24.53	12.972	
5,300.0	5,281.8	5,282.2	5,265.2	12.5	13.1	-108.99	252.6	-241.5	325.0	300.1	24.95	13.026	
5,400.0	5,381.8	5,389.8	5,372.5	12.7	13.3	-90.38	257.8	-245.9	329.0	303.7	25.33	12.987	
5,500.0	5,481.8	5,497.7	5,480.3	12.9	13.5	-90.01	259.9	-247.7	330.7	304.9	25.73	12.853	
5,600.0	5,581.8	5,599.1	5,581.8	13.1	13.7	-90.00	260.0	-247.7	330.7	304.6	26.12	12.662	
5,700.0	5,681.8	5,699.1	5,681.8	13.3	13.9	-90.00	260.0	-247.7	330.7	304.2	26.53	12.465	
5,800.0	5,781.8	5,799.1	5,781.8	13.5	14.1	-90.00	260.0	-247.7	330.7	303.7	26.94	12.273	
5,900.0	5,881.8	5,899.1	5,881.8	13.7	14.3	-90.00	260.0	-247.7	330.7	303.3	27.36	12.087	
6,000.0	5,981.8	5,999.1	5,981.8	13.9	14.5	-90.00	260.0	-247.7	330.7	302.9	27.78	11.906	
6,100.0	6,081.8	6,099.1	6,081.8	14.1	14.7	-90.00	260.0	-247.7	330.7	302.5	28.19	11.730	
6,200.0	6,181.8	6,199.1	6,181.8	14.3	14.9	-90.00	260.0	-247.7	330.7	302.1	28.61	11.558	
6,300.0	6,281.8	6,299.1	6,281.8	14.5	15.1	-90.00	260.0	-247.7	330.7	301.7	29.03	11.391	
6,400.0	6,381.8	6,399.1	6,381.8	14.8	15.3	-90.00	260.0	-247.7	330.7	301.2	29.45	11.229	
6,449.7	6,431.5	6,448.8	6,431.5	14.9	15.4	-90.00	260.0	-247.7	330.7	301.0	29.66	11.150	
6,500.0	6,481.8	6,499.0	6,481.7	15.0	15.5	-90.24	258.6	-247.7	330.7	300.8	29.86	11.076	
6,600.0	6,581.8	6,597.3	6,579.2	15.2	15.6	-92.34	246.5	-247.7	331.0	300.8	30.19	10.962	
6,700.0	6,681.8	6,691.5	6,670.4	15.4	15.7	83.75	223.2	-247.7	332.8	302.3	30.47	10.922	
6,800.0	6,780.5	6,783.2	6,755.8	15.5	15.7	80.03	190.0	-247.7	336.0	305.4	30.58	10.985	
6,900.0	6,875.8	6,873.4	6,835.3	15.5	15.7	76.95	147.5	-247.8	339.7	309.1	30.57	11.112	
7,000.0	6,965.2	6,962.4	6,908.3	15.5	15.7	74.55	96.7	-247.8	343.2	312.8	30.46	11.268	
7,100.0	7,046.4	7,050.0	6,973.9	15.5	15.7	72.86	38.8	-247.9	346.1	315.8	30.34	11.407	
7,200.0	7,117.6	7,138.3	7,032.9	15.6	15.7	71.84	-26.9	-247.9	348.0	317.6	30.34	11.470	
7,300.0	7,177.0	7,225.7	7,083.5	15.7	15.8	71.53	-98.1	-248.0	348.5	318.0	30.58	11.397	
7,400.0	7,223.0	7,313.1	7,125.6	16.1	16.2	71.92	-174.7	-248.0	347.8	316.6	31.18	11.152	
7,500.0	7,254.6	7,400.0	7,158.5	16.6	16.7	73.00	-255.0	-248.1	345.7	313.5	32.23	10.728	
7,600.0	7,271.0	7,489.1	7,182.6	17.3	17.4	74.80	-340.8	-248.1	342.7	309.0	33.75	10.153	
7,700.0	7,273.1	7,578.4	7,196.5	18.2	18.3	76.97	-428.9	-248.2	339.3	303.7	35.63	9.523	
7,800.0	7,272.2	7,670.7	7,200.2	19.2	19.2	77.70	-521.1	-248.3	338.2	300.6	37.63	8.987	
7,900.0	7,271.4	7,770.7	7,199.8	20.3	20.4	77.78	-621.1	-248.3	338.1	298.2	39.91	8.472	
8,000.0	7,270.6	7,870.7	7,199.5	21.6	21.6	77.86	-721.1	-248.4	338.0	295.6	42.39	7.973	
8,100.0	7,269.7	7,970.7	7,199.2	22.9	23.0	77.94	-821.1	-248.5	337.8	292.8	45.05	7.500	
8,200.0	7,268.9	8,070.7	7,198.8	24.4	24.4	78.03	-921.1	-248.6	337.7	289.8	47.86	7.056	
8,300.0	7,268.0	8,170.7	7,198.5	25.9	25.9	78.11	-1,021.1	-248.6	337.6	286.8	50.80	6.645	
8,400.0	7,267.2	8,270.7	7,198.2	27.4	27.4	78.19	-1,121.1	-248.7	337.4	283.6	53.84	6.267	
8,500.0	7,266.4	8,370.7	7,197.8	29.0	29.0	78.28	-1,221.1	-248.8	337.3	280.3	56.97	5.920	
8,600.0	7,265.5	8,470.7	7,197.5	30.6	30.7	78.36	-1,321.1	-248.9	337.2	277.0	60.18	5.602	
8,700.0	7,264.7	8,570.7	7,197.2	32.3	32.3	78.44	-1,421.1	-248.9	337.0	273.6	63.46	5.311	
8,800.0	7,263.9	8,670.7	7,196.8	34.0	34.0	78.53	-1,521.1	-249.0	336.9	270.1	66.79	5.044	
8,900.0	7,263.0	8,770.7	7,196.5	35.7	35.7	78.61	-1,621.1	-249.1	336.8	266.6	70.17	4.800	
9,000.0	7,262.2	8,870.7	7,196.2	37.4	37.4	78.69	-1,721.1	-249.1	336.6	263.1	73.59	4.575	
9,100.0	7,261.3	8,970.7	7,195.8	39.1	39.2	78.78	-1,821.1	-249.2	336.5	259.5	77.04	4.368	
9,200.0	7,260.5	9,070.7	7,195.5	40.9	40.9	78.86	-1,921.1	-249.3	336.4	255.9	80.53	4.177	
9,300.0	7,259.7	9,170.7	7,195.2	42.7	42.7	78.94	-2,021.1	-249.4	336.3	252.2	84.05	4.001	
9,400.0	7,258.8	9,270.7	7,194.8	44.5	44.5	79.03	-2,121.1	-249.4	336.1	248.6	87.59	3.838	
9,500.0	7,258.0	9,370.7	7,194.5	46.3	46.3	79.11	-2,221.1	-249.5	336.0	244.9	91.15	3.686	
9,600.0	7,257.2	9,470.7	7,194.2	48.1	48.1	79.20	-2,321.1	-249.6	335.9	241.2	94.73	3.546	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore 1 Gaddis 36J-3034	Database:	Landmark
Reference Design:	Plan #4 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Gaddis Pad Sec.36-T4N-R68W - Gaddis 36J-243 - Wellbore #1 - Plan #2 (10-16-13)													Offset Well Error:	0.0 ft
Survey Program: 0-MWD														
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
9,700.0	7,256.3	9,570.7	7,193.9	49.9	49.9	79.28	-2,421.1	-249.7	335.8	237.4	98.33	3.415		
9,800.0	7,255.5	9,670.7	7,193.5	51.7	51.7	79.36	-2,521.1	-249.7	335.6	233.7	101.95	3.292		
9,900.0	7,254.6	9,770.7	7,193.2	53.6	53.6	79.45	-2,621.1	-249.8	335.5	229.9	105.58	3.178		
10,000.0	7,253.8	9,870.7	7,192.9	55.4	55.4	79.53	-2,721.1	-249.9	335.4	226.2	109.22	3.071		
10,100.0	7,253.0	9,970.7	7,192.5	57.2	57.2	79.62	-2,821.1	-249.9	335.3	222.4	112.88	2.970		
10,200.0	7,252.1	10,070.7	7,192.2	59.1	59.1	79.70	-2,921.1	-250.0	335.2	218.6	116.55	2.876		
10,300.0	7,251.3	10,170.7	7,191.9	60.9	60.9	79.78	-3,021.1	-250.1	335.0	214.8	120.23	2.787		
10,400.0	7,250.4	10,270.7	7,191.5	62.8	62.8	79.87	-3,121.1	-250.2	334.9	211.0	123.92	2.703		
10,500.0	7,249.6	10,370.7	7,191.2	64.6	64.7	79.95	-3,221.1	-250.2	334.8	207.2	127.61	2.624		
10,600.0	7,248.8	10,470.7	7,190.9	66.5	66.5	80.04	-3,321.1	-250.3	334.7	203.4	131.32	2.549		
10,700.0	7,247.9	10,570.7	7,190.5	68.4	68.4	80.12	-3,421.1	-250.4	334.6	199.6	135.03	2.478		
10,800.0	7,247.1	10,670.7	7,190.2	70.2	70.2	80.21	-3,521.1	-250.5	334.5	195.7	138.75	2.411		
10,900.0	7,246.3	10,770.7	7,189.9	72.1	72.1	80.29	-3,621.1	-250.5	334.4	191.9	142.47	2.347		
11,000.0	7,245.4	10,870.7	7,189.5	74.0	74.0	80.38	-3,721.1	-250.6	334.2	188.0	146.21	2.286		
11,100.0	7,244.6	10,970.7	7,189.2	75.9	75.9	80.46	-3,821.1	-250.7	334.1	184.2	149.94	2.228		
11,200.0	7,243.7	11,070.7	7,188.9	77.7	77.7	80.55	-3,921.1	-250.8	334.0	180.3	153.69	2.173		
11,300.0	7,242.9	11,170.7	7,188.5	79.6	79.6	80.63	-4,021.1	-250.8	333.9	176.5	157.44	2.121		
11,400.0	7,242.1	11,270.7	7,188.2	81.5	81.5	80.72	-4,121.1	-250.9	333.8	172.6	161.19	2.071		
11,500.0	7,241.2	11,370.7	7,187.9	83.4	83.4	80.80	-4,221.1	-251.0	333.7	168.7	164.95	2.023		
11,600.0	7,240.4	11,470.7	7,187.6	85.3	85.3	80.89	-4,321.1	-251.0	333.6	164.9	168.71	1.977		
11,700.0	7,239.6	11,570.7	7,187.2	87.2	87.2	80.97	-4,421.0	-251.1	333.5	161.0	172.48	1.933		
11,766.8	7,239.0	11,637.5	7,187.0	88.2	88.3	81.03	-4,487.8	-251.2	333.4	158.8	174.62	1.909 SF		

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore 1 Gaddis 36J-3034	Database:	Landmark
Reference Design:	Plan #4 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design													Gaddis Pad Sec.36-T4N-R68W - Gaddis 36J-3034 /Codell Sidetrack - Wellbore #2 Codell Sidetrack - P	Offset Site Error:	0.0 ft
Survey Program: -8-MWD, 7210-MWD														Offset Well Error:	0.0 ft
Reference	Offset		Semi Major Axis		Distance		Minimum Separation		Separation Factor		Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
7,218.0	7,129.2	7,210.0	7,121.2	0.0	0.0	0.00	26.9	82.8	0.0	0.0	0.00	N/A CC, ES			
7,300.0	7,177.0	7,291.9	7,170.8	1.2	0.7	129.16	-38.2	79.8	3.7	2.4	1.30	2.874			
7,400.0	7,223.0	7,390.6	7,223.9	2.4	1.8	128.64	-120.6	68.6	18.3	16.0	2.39	7.681			
7,500.0	7,254.6	7,487.1	7,268.1	3.1	1.0	127.70	-204.2	49.7	43.6	41.7	1.87	23.286			
7,600.0	7,271.0	7,580.3	7,303.1	3.7	1.5	126.46	-286.7	24.3	78.7	76.3	2.46	31.994			
7,700.0	7,273.1	7,677.5	7,335.6	4.4	2.4	129.33	-374.0	-3.3	120.7	116.7	4.00	30.210			
7,800.0	7,272.2	7,786.8	7,364.4	5.1	3.4	132.21	-476.5	-27.8	155.5	150.1	5.36	29.013			
7,900.0	7,271.4	7,904.5	7,385.2	6.0	4.6	133.58	-590.9	-45.6	179.2	172.1	7.04	25.446			
8,000.0	7,270.6	8,027.6	7,395.3	7.0	5.9	134.21	-713.2	-54.4	190.5	181.5	9.03	21.098			
8,100.0	7,269.7	8,136.3	7,395.8	8.1	7.2	134.39	-821.9	-55.1	191.7	180.6	11.07	17.315			
8,200.0	7,268.9	8,236.3	7,395.6	9.4	8.5	134.54	-921.9	-55.1	192.0	178.9	13.17	14.580			
8,300.0	7,268.0	8,336.3	7,395.3	10.7	9.9	134.68	-1,021.9	-55.1	192.4	177.0	15.37	12.522			
8,400.0	7,267.2	8,436.3	7,395.1	12.2	11.4	134.82	-1,121.9	-55.2	192.8	175.1	17.64	10.930			
8,500.0	7,266.4	8,536.3	7,394.9	13.7	12.9	134.96	-1,221.9	-55.2	193.1	173.2	19.97	9.670			
8,600.0	7,265.5	8,636.3	7,394.6	15.3	14.5	135.10	-1,321.9	-55.2	193.5	171.2	22.36	8.654			
8,700.0	7,264.7	8,736.3	7,394.4	16.9	16.1	135.25	-1,421.9	-55.2	193.9	169.1	24.79	7.821			
8,800.0	7,263.9	8,836.3	7,394.1	18.6	17.8	135.39	-1,521.9	-55.3	194.3	167.0	27.26	7.127			
8,900.0	7,263.0	8,936.3	7,393.9	20.2	19.5	135.53	-1,621.9	-55.3	194.6	164.9	29.75	6.542			
9,000.0	7,262.2	9,036.3	7,393.7	22.0	21.2	135.66	-1,721.9	-55.3	195.0	162.7	32.27	6.043			
9,100.0	7,261.3	9,136.3	7,393.4	23.7	22.9	135.80	-1,821.9	-55.3	195.4	160.6	34.80	5.614			
9,200.0	7,260.5	9,236.3	7,393.2	25.4	24.6	135.94	-1,921.9	-55.4	195.7	158.4	37.36	5.240			
9,300.0	7,259.7	9,336.3	7,392.9	27.2	26.4	136.08	-2,021.9	-55.4	196.1	156.2	39.92	4.913			
9,400.0	7,258.8	9,436.3	7,392.7	29.0	28.2	136.22	-2,121.9	-55.4	196.5	154.0	42.49	4.624			
9,500.0	7,258.0	9,536.3	7,392.4	30.8	30.0	136.35	-2,221.8	-55.4	196.9	151.8	45.07	4.368			
9,600.0	7,257.2	9,636.3	7,392.2	32.6	31.8	136.49	-2,321.8	-55.5	197.3	149.6	47.66	4.139			
9,700.0	7,256.3	9,736.3	7,392.0	34.4	33.6	136.62	-2,421.8	-55.5	197.6	147.4	50.25	3.933			
9,800.0	7,255.5	9,836.3	7,391.7	36.2	35.4	136.76	-2,521.8	-55.5	198.0	145.2	52.84	3.747			
9,900.0	7,254.6	9,936.3	7,391.5	38.0	37.2	136.89	-2,621.8	-55.5	198.4	143.0	55.43	3.579			
10,000.0	7,253.8	10,036.3	7,391.2	39.9	39.0	137.03	-2,721.8	-55.6	198.8	140.8	58.03	3.426			
10,100.0	7,253.0	10,136.3	7,391.0	41.7	40.9	137.16	-2,821.8	-55.6	199.2	138.6	60.62	3.286			
10,200.0	7,252.1	10,236.3	7,390.8	43.6	42.7	137.29	-2,921.8	-55.6	199.6	136.3	63.21	3.157			
10,300.0	7,251.3	10,336.3	7,390.5	45.4	44.6	137.43	-3,021.8	-55.6	199.9	134.1	65.80	3.039			
10,400.0	7,250.4	10,436.3	7,390.3	47.3	46.4	137.56	-3,121.8	-55.7	200.3	132.0	68.38	2.930			
10,500.0	7,249.6	10,536.3	7,390.0	49.1	48.3	137.69	-3,221.8	-55.7	200.7	129.8	70.96	2.829			
10,600.0	7,248.8	10,636.3	7,389.8	51.0	50.1	137.82	-3,321.8	-55.7	201.1	127.6	73.54	2.735			
10,700.0	7,247.9	10,736.3	7,389.6	52.8	52.0	137.95	-3,421.8	-55.7	201.5	125.4	76.11	2.648			
10,800.0	7,247.1	10,836.3	7,389.3	54.7	53.8	138.08	-3,521.8	-55.8	201.9	123.2	78.68	2.566			
10,900.0	7,246.3	10,936.3	7,389.1	56.6	55.7	138.21	-3,621.8	-55.8	202.3	121.1	81.24	2.490			
11,000.0	7,245.4	11,036.3	7,388.8	58.4	57.6	138.34	-3,721.8	-55.8	202.7	118.9	83.80	2.419			
11,100.0	7,244.6	11,136.3	7,388.6	60.3	59.5	138.47	-3,821.8	-55.8	203.1	116.7	86.35	2.352			
11,200.0	7,243.7	11,236.3	7,388.4	62.2	61.3	138.59	-3,921.8	-55.9	203.5	114.6	88.89	2.289			
11,300.0	7,242.9	11,336.3	7,388.1	64.1	63.2	138.72	-4,021.8	-55.9	203.9	112.4	91.43	2.230			
11,400.0	7,242.1	11,436.3	7,387.9	66.0	65.1	138.85	-4,121.8	-55.9	204.3	110.3	93.96	2.174			
11,500.0	7,241.2	11,536.2	7,387.6	67.8	67.0	138.97	-4,221.8	-55.9	204.7	108.2	96.49	2.121			
11,600.0	7,240.4	11,636.2	7,387.4	69.7	68.9	139.10	-4,321.8	-56.0	205.1	106.1	99.00	2.071			
11,700.0	7,239.6	11,736.2	7,387.2	71.6	70.7	139.22	-4,421.8	-56.0	205.5	104.0	101.51	2.024			
11,766.8	7,239.0	11,803.0	7,387.0	72.6	72.0	139.31	-4,488.6	-56.0	205.7	102.8	102.96	1.998 SF			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore 1 Gaddis 36J-3034	Database:	Landmark
Reference Design:	Plan #4 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design Gaddis Pad Sec.36-T4N-R68W - Gaddis 36M-443 - Wellbore #1 - Plan #4 (10-16-13)														Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		Warning					
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	58.6	58.6						
100.0	100.0	99.0	99.0	0.1	0.1	90.00	0.0	58.6	58.6	58.4	0.22	262.007			
200.0	200.0	199.0	199.0	0.3	0.3	90.00	0.0	58.6	58.6	57.9	0.67	87.190 CC, ES			
300.0	300.0	297.1	297.1	0.6	0.6	89.48	0.5	60.1	60.2	59.1	1.11	54.103			
400.0	400.0	394.9	394.8	0.8	0.8	88.06	2.2	64.9	65.0	63.5	1.56	41.681			
500.0	500.0	492.3	491.8	1.0	1.0	86.11	4.9	72.7	73.2	71.2	2.01	36.329			
600.0	600.0	589.0	587.8	1.2	1.3	84.02	8.7	83.5	84.7	82.2	2.47	34.226			
700.0	700.0	687.0	684.7	1.5	1.6	82.09	13.5	96.9	98.8	95.9	2.94	33.632			
800.0	800.0	785.9	782.6	1.7	1.9	80.62	18.3	110.6	113.3	109.9	3.40	33.354			
900.0	900.0	884.8	880.4	1.9	2.3	79.48	23.1	124.3	127.8	123.9	3.86	33.117			
1,000.0	1,000.0	983.7	978.3	2.1	2.6	78.57	27.9	138.0	142.4	138.0	4.33	32.912			
1,100.0	1,100.0	1,082.6	1,076.1	2.4	2.9	77.83	32.7	151.8	156.9	152.1	4.79	32.733			
1,200.0	1,200.0	1,181.5	1,173.9	2.6	3.3	77.21	37.6	165.5	171.5	166.3	5.27	32.577			
1,300.0	1,300.0	1,280.5	1,271.8	2.8	3.6	76.69	42.4	179.2	186.2	180.4	5.74	32.441			
1,400.0	1,400.0	1,379.4	1,369.6	3.0	4.0	76.25	47.2	192.9	200.8	194.6	6.21	32.320			
1,500.0	1,500.0	1,478.3	1,467.5	3.3	4.3	75.87	52.0	206.7	215.4	208.7	6.69	32.213			
1,600.0	1,600.0	1,577.2	1,565.3	3.5	4.7	75.54	56.8	220.4	230.1	222.9	7.16	32.117			
1,700.0	1,700.0	1,676.1	1,663.1	3.7	5.0	75.24	61.7	234.1	244.7	237.1	7.64	32.032			
1,800.0	1,800.0	1,775.0	1,761.0	3.9	5.4	74.98	66.5	247.8	259.4	251.3	8.12	31.954			
1,900.0	1,900.0	1,873.9	1,858.8	4.2	5.7	74.75	71.3	261.5	274.0	265.5	8.60	31.884			
2,000.0	2,000.0	1,972.9	1,956.6	4.4	6.1	74.54	76.1	275.3	288.7	279.6	9.07	31.820			
2,100.0	2,100.0	2,071.8	2,054.5	4.6	6.4	74.35	80.9	289.0	303.4	293.8	9.55	31.762			
2,200.0	2,200.0	2,170.7	2,152.3	4.8	6.8	74.18	85.8	302.7	318.1	308.0	10.03	31.709			
2,300.0	2,300.0	2,269.6	2,250.2	5.1	7.1	74.02	90.6	316.4	332.7	322.2	10.51	31.659			
2,400.0	2,400.0	2,368.5	2,348.0	5.3	7.5	73.88	95.4	330.1	347.4	336.4	10.99	31.614			
2,500.0	2,500.0	2,467.4	2,445.8	5.5	7.8	73.75	100.2	343.9	362.1	350.6	11.47	31.572			
2,600.0	2,600.0	2,566.3	2,543.7	5.7	8.2	73.63	105.1	357.6	376.8	364.8	11.95	31.533			
2,700.0	2,700.0	2,665.2	2,641.5	6.0	8.5	73.52	109.9	371.3	391.5	379.0	12.43	31.496			
2,800.0	2,800.0	2,764.2	2,739.3	6.2	8.9	73.41	114.7	385.0	406.2	393.2	12.91	31.462			
2,900.0	2,900.0	2,863.1	2,837.2	6.4	9.2	73.31	119.5	398.8	420.8	407.5	13.39	31.431			
3,000.0	3,000.0	2,962.0	2,935.0	6.6	9.6	73.22	124.3	412.5	435.5	421.7	13.87	31.401			
3,100.0	3,100.0	3,061.0	3,033.0	6.9	9.9	55.39	129.2	426.2	449.2	435.2	14.08	31.900			
3,200.0	3,199.8	3,160.3	3,131.2	7.1	10.3	55.65	134.0	440.0	461.0	446.4	14.56	31.670			
3,300.0	3,299.5	3,259.6	3,229.4	7.3	10.7	56.27	138.8	453.8	470.9	455.8	15.03	31.332			
3,400.0	3,398.7	3,358.8	3,327.6	7.5	11.0	57.24	143.7	467.5	478.9	463.4	15.50	30.894			
3,500.0	3,497.7	3,458.0	3,425.6	7.8	11.4	58.50	148.5	481.3	486.0	470.1	15.99	30.403			
3,600.0	3,596.6	3,557.1	3,523.7	8.0	11.7	59.73	153.3	495.0	493.4	476.9	16.48	29.935			
3,700.0	3,695.6	3,656.3	3,621.8	8.3	12.1	60.94	158.2	508.8	501.0	484.0	16.99	29.490			
3,800.0	3,794.6	3,755.5	3,719.9	8.5	12.4	62.10	163.0	522.5	508.8	491.2	17.50	29.066			
3,900.0	3,893.6	3,854.6	3,818.0	8.8	12.8	63.23	167.8	536.3	516.7	498.7	18.03	28.662			
4,000.0	3,992.5	3,953.8	3,916.1	9.0	13.1	64.33	172.7	550.1	524.9	506.4	18.56	28.277			
4,100.0	4,091.5	4,053.0	4,014.2	9.3	13.5	65.39	177.5	563.8	533.3	514.2	19.11	27.911			
4,200.0	4,190.5	4,152.1	4,112.2	9.6	13.8	66.42	182.3	577.6	541.9	522.2	19.66	27.562			
4,300.0	4,289.4	4,251.3	4,210.3	9.9	14.2	67.42	187.2	591.3	550.6	530.4	20.22	27.229			
4,400.0	4,388.4	4,350.5	4,308.4	10.2	14.5	68.38	192.0	605.1	559.5	538.7	20.79	26.913			
4,500.0	4,487.4	4,449.6	4,406.5	10.4	14.9	69.32	196.8	618.8	568.5	547.2	21.36	26.612			
4,600.0	4,586.4	4,548.8	4,504.6	10.7	15.2	70.22	201.7	632.6	577.7	555.8	21.95	26.325			
4,700.0	4,685.3	4,647.9	4,602.7	11.0	15.6	71.10	206.5	646.4	587.0	564.5	22.53	26.052			
4,800.0	4,784.3	4,747.1	4,700.8	11.3	16.0	71.95	211.3	660.1	596.5	573.4	23.13	25.792			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore 1 Gaddis 36J-3034	Database:	Landmark
Reference Design:	Plan #4 (10-16-13)	Offset TVD Reference:	Offset Datum

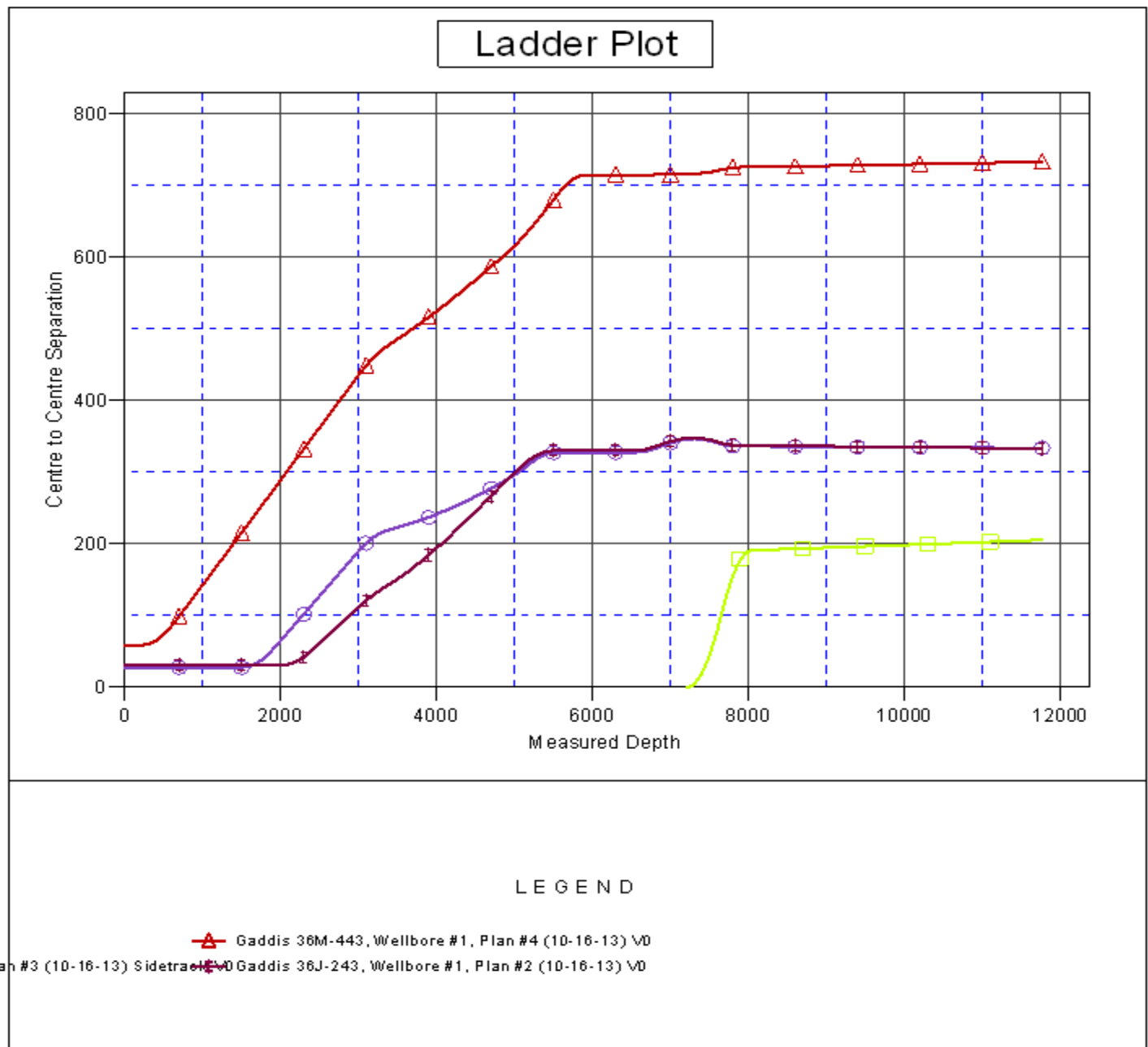
Offset Design Gaddis Pad Sec.36-T4N-R68W - Gaddis 36M-443 - Wellbore #1 - Plan #4 (10-16-13)														Offset Site Error:	0.0 ft
Survey Program: 0-MWD														Offset Well Error:	0.0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		Warning					
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
4,900.0	4,883.3	4,846.3	4,798.8	11.6	16.3	72.78	216.2	673.9	606.1	582.4	23.73	25.544			
5,000.0	4,982.4	4,945.5	4,897.0	11.9	16.7	73.62	221.0	687.6	616.2	591.9	24.29	25.369			
5,100.0	5,082.0	5,044.8	4,995.2	12.1	17.0	74.18	225.9	701.4	627.4	602.6	24.79	25.308			
5,200.0	5,181.8	5,144.1	5,093.4	12.3	17.4	74.43	230.7	715.2	639.5	614.2	25.25	25.326			
5,300.0	5,281.8	5,243.2	5,191.4	12.5	17.7	74.41	235.5	728.9	652.5	626.9	25.67	25.418			
5,400.0	5,381.8	5,342.1	5,289.2	12.7	18.1	91.71	240.3	742.6	666.3	640.2	26.08	25.551			
5,500.0	5,481.8	5,441.0	5,387.1	12.9	18.4	91.26	245.2	756.4	680.0	653.5	26.51	25.655			
5,600.0	5,581.8	5,541.7	5,486.7	13.1	18.8	90.83	250.1	770.3	693.8	666.9	26.94	25.753			
5,700.0	5,681.8	5,670.6	5,614.6	13.3	19.1	90.39	255.3	785.2	705.3	677.9	27.39	25.752			
5,800.0	5,781.8	5,800.6	5,744.3	13.5	19.4	90.11	258.6	794.6	712.5	684.7	27.82	25.617			
5,900.0	5,881.8	5,931.3	5,874.9	13.7	19.6	90.00	260.0	798.5	715.5	687.3	28.23	25.342			
6,000.0	5,981.8	6,037.2	5,980.8	13.9	19.7	90.00	260.0	798.6	715.6	687.0	28.63	24.996			
6,100.0	6,081.8	6,137.2	6,080.8	14.1	19.9	90.00	260.0	798.6	715.6	686.6	29.02	24.658			
6,200.0	6,181.8	6,237.2	6,180.8	14.3	20.0	90.00	260.0	798.6	715.6	686.2	29.41	24.328			
6,300.0	6,281.8	6,337.2	6,280.8	14.5	20.1	90.00	260.0	798.6	715.6	685.8	29.81	24.005			
6,400.0	6,381.8	6,437.2	6,380.8	14.8	20.3	90.00	260.0	798.6	715.6	685.4	30.21	23.690			
6,500.0	6,481.8	6,537.2	6,480.8	15.0	20.4	90.00	260.0	798.6	715.6	685.0	30.60	23.382			
6,600.0	6,581.8	6,637.2	6,580.8	15.2	20.6	90.00	260.0	798.6	715.6	684.6	31.00	23.080			
6,649.5	6,631.3	6,686.8	6,630.3	15.3	20.7	-90.12	259.9	798.6	715.6	684.4	31.19	22.942			
6,700.0	6,681.8	6,737.2	6,680.7	15.4	20.7	-89.98	257.4	798.6	715.6	684.2	31.37	22.810			
6,800.0	6,780.5	6,837.1	6,779.5	15.5	20.8	-90.00	242.8	798.6	715.6	684.0	31.57	22.670			
6,900.0	6,875.8	6,937.2	6,875.6	15.5	20.8	-90.22	215.3	798.6	715.6	684.0	31.64	22.621			
7,000.0	6,965.2	7,037.7	6,967.8	15.5	20.9	-90.65	175.3	798.5	715.7	684.0	31.64	22.619			
7,100.0	7,046.4	7,139.0	7,054.5	15.5	20.9	-91.28	123.2	798.5	715.8	684.2	31.66	22.611			
7,200.0	7,117.6	7,241.2	7,134.2	15.6	20.9	-92.09	59.4	798.5	716.1	684.4	31.78	22.533			
7,300.0	7,177.0	7,344.8	7,205.7	15.7	20.9	-93.07	-15.5	798.4	716.7	684.6	32.10	22.326			
7,400.0	7,223.0	7,450.0	7,267.2	16.1	21.0	-94.20	-100.8	798.4	717.7	685.0	32.69	21.955			
7,500.0	7,254.6	7,557.3	7,317.2	16.6	21.2	-95.46	-195.6	798.3	719.1	685.5	33.59	21.410			
7,600.0	7,271.0	7,666.9	7,354.1	17.3	21.6	-96.83	-298.7	798.2	721.1	686.3	34.80	20.721			
7,700.0	7,273.1	7,779.5	7,376.3	18.2	22.2	-98.27	-409.0	798.1	723.5	687.2	36.34	19.911			
7,800.0	7,272.2	7,882.4	7,387.1	19.2	23.0	-99.18	-511.3	798.1	725.3	687.1	38.19	18.991			
7,900.0	7,271.4	7,993.3	7,392.0	20.3	24.0	-99.64	-622.1	798.0	726.2	685.7	40.45	17.953			
8,000.0	7,270.6	8,093.3	7,392.0	21.6	25.0	-99.70	-722.1	797.9	726.3	683.5	42.87	16.944			
8,100.0	7,269.7	8,193.3	7,392.0	22.9	26.2	-99.77	-822.1	797.9	726.5	681.0	45.47	15.978			
8,200.0	7,268.9	8,293.3	7,392.0	24.4	27.4	-99.83	-922.1	797.8	726.7	678.5	48.23	15.068			
8,300.0	7,268.0	8,393.3	7,392.0	25.9	28.7	-99.90	-1,022.1	797.7	726.9	675.7	51.11	14.220			
8,400.0	7,267.2	8,493.3	7,392.0	27.4	30.1	-99.96	-1,122.1	797.7	727.0	672.9	54.11	13.436			
8,500.0	7,266.4	8,593.3	7,392.0	29.0	31.6	-100.03	-1,222.1	797.6	727.2	670.0	57.20	12.713			
8,600.0	7,265.5	8,693.3	7,392.0	30.6	33.1	-100.09	-1,322.1	797.5	727.4	667.0	60.37	12.050			
8,700.0	7,264.7	8,793.3	7,392.0	32.3	34.6	-100.16	-1,422.1	797.5	727.6	664.0	63.60	11.440			
8,800.0	7,263.9	8,893.3	7,392.0	34.0	36.2	-100.22	-1,522.1	797.4	727.8	660.9	66.89	10.881			
8,900.0	7,263.0	8,993.3	7,392.0	35.7	37.8	-100.29	-1,622.0	797.3	727.9	657.7	70.22	10.366			
9,000.0	7,262.2	9,093.3	7,392.0	37.4	39.4	-100.35	-1,722.0	797.2	728.1	654.5	73.60	9.893			
9,100.0	7,261.3	9,193.3	7,392.0	39.1	41.1	-100.41	-1,822.0	797.2	728.3	651.3	77.01	9.457			
9,200.0	7,260.5	9,293.2	7,392.0	40.9	42.8	-100.48	-1,922.0	797.1	728.5	648.0	80.45	9.055			
9,300.0	7,259.7	9,393.2	7,392.0	42.7	44.5	-100.54	-2,022.0	797.0	728.7	644.8	83.92	8.683			
9,400.0	7,258.8	9,493.2	7,392.0	44.5	46.2	-100.61	-2,122.0	797.0	728.9	641.5	87.41	8.338			
9,500.0	7,258.0	9,593.2	7,392.0	46.3	47.9	-100.67	-2,222.0	796.9	729.1	638.1	90.93	8.018			
9,600.0	7,257.2	9,693.2	7,392.0	48.1	49.7	-100.74	-2,322.0	796.8	729.2	634.8	94.46	7.720			

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore 1 Gaddis 36J-3034	Database:	Landmark
Reference Design:	Plan #4 (10-16-13)	Offset TVD Reference:	Offset Datum

Offset Design Gaddis Pad Sec.36-T4N-R68W - Gaddis 36M-443 - Wellbore #1 - Plan #4 (10-16-13)												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
9,700.0	7,256.3	9,793.2	7,392.0	49.9	51.4	-100.80	-2,422.0	796.8	729.4	631.4	98.01	7.443	
9,800.0	7,255.5	9,893.2	7,392.0	51.7	53.2	-100.86	-2,522.0	796.7	729.6	628.1	101.57	7.184	
9,900.0	7,254.6	9,993.2	7,392.0	53.6	55.0	-100.93	-2,622.0	796.6	729.8	624.7	105.14	6.941	
10,000.0	7,253.8	10,093.2	7,392.0	55.4	56.8	-100.99	-2,722.0	796.6	730.0	621.3	108.72	6.714	
10,100.0	7,253.0	10,193.2	7,392.0	57.2	58.6	-101.06	-2,822.0	796.5	730.2	617.9	112.32	6.501	
10,200.0	7,252.1	10,293.2	7,392.0	59.1	60.4	-101.12	-2,922.0	796.4	730.4	614.5	115.92	6.301	
10,300.0	7,251.3	10,393.2	7,392.0	60.9	62.2	-101.18	-3,022.0	796.4	730.6	611.1	119.53	6.112	
10,400.0	7,250.4	10,493.2	7,392.0	62.8	64.0	-101.25	-3,122.0	796.3	730.8	607.6	123.15	5.934	
10,500.0	7,249.6	10,593.2	7,392.0	64.6	65.8	-101.31	-3,222.0	796.2	731.0	604.2	126.78	5.766	
10,600.0	7,248.8	10,693.2	7,392.0	66.5	67.6	-101.38	-3,322.0	796.2	731.2	600.8	130.41	5.607	
10,700.0	7,247.9	10,793.2	7,392.0	68.4	69.5	-101.44	-3,422.0	796.1	731.4	597.3	134.04	5.456	
10,800.0	7,247.1	10,893.2	7,392.0	70.2	71.3	-101.50	-3,522.0	796.0	731.6	593.9	137.68	5.314	
10,900.0	7,246.3	10,993.2	7,392.0	72.1	73.2	-101.57	-3,622.0	796.0	731.8	590.5	141.32	5.178	
11,000.0	7,245.4	11,093.2	7,392.0	74.0	75.0	-101.63	-3,722.0	795.9	732.0	587.0	144.97	5.049	
11,100.0	7,244.6	11,193.2	7,392.0	75.9	76.9	-101.69	-3,822.0	795.8	732.2	583.6	148.62	4.927	
11,200.0	7,243.7	11,293.2	7,392.0	77.7	78.7	-101.76	-3,922.0	795.8	732.4	580.1	152.27	4.810	
11,300.0	7,242.9	11,393.2	7,392.0	79.6	80.6	-101.82	-4,022.0	795.7	732.6	576.7	155.93	4.698	
11,400.0	7,242.1	11,493.2	7,392.0	81.5	82.4	-101.88	-4,122.0	795.6	732.8	573.2	159.59	4.592	
11,500.0	7,241.2	11,593.2	7,392.0	83.4	84.3	-101.95	-4,222.0	795.6	733.0	569.8	163.25	4.490	
11,600.0	7,240.4	11,693.2	7,392.0	85.3	86.1	-102.01	-4,322.0	795.5	733.2	566.3	166.91	4.393	
11,700.0	7,239.6	11,793.2	7,392.0	87.2	88.0	-102.08	-4,422.0	795.4	733.4	562.9	170.57	4.300	
11,766.8	7,239.0	11,859.4	7,392.0	88.2	89.3	-102.12	-4,488.2	795.4	733.6	560.8	172.77	4.246 SF	

Company:	PETROLEUM DEVELOPMENT CORP Weld County CO	Local Co-ordinate Reference:	Well Gaddis 36J-3034 /Codell Sidetrack
Project:	SEC.36-T4N-R68W	TVD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Reference Site:	Gaddis Pad Sec.36-T4N-R68W	MD Reference:	WELL @ 5081.0ft (Ensign Rig #119 - RKB - 16')
Site Error:	0.0ft	North Reference:	True
Reference Well:	Gaddis 36J-3034 /Codell Sidetrack	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore 1 Gaddis 36J-3034	Database:	Landmark
Reference Design:	Plan #4 (10-16-13)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 5081.0ft (Ensign Rig #119 - Coordinates are relative to: Gaddis 36J-3034 /Codell Sidetrack
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.35°



Reference Depths are relative to WELL @ 5081.0ft (Ensign Rig #119 - Coordinates are relative to: Gaddis 36J-3034 /Codell Sidetrack
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.500000 ° Grid Convergence at Surface is: 0.35°

